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PATENT  
Attorney's Matter No. 60208

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Geoffrey B. Rhoads

Examining Group 2747

Application No.: 09/585,726

Filed: May 31, 2000

For: ENCODING AND DECODING  
AUXILIARY CODES IN AUDIO  
SIGNALS

Examiner:

Date: August 24, 2000

CERTIFICATE OF MAILING

I hereby certify that this paper and the documents referred to as being attached or enclosed herewith are being deposited with the United States Postal Service on August 24, 2000 as First Class Mail in an envelope addressed to: OFFICE OF INITIAL PATENT EXAMINATION'S CUSTOMER SERVICE CENTER, ASSISTANT COMMISSIONER FOR PATENTS, WASHINGTON, D.C. 20231.

Joel R. Meyer  
Attorney for Applicant

**REQUEST FOR CORRECTED FILING RECEIPT**

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Please provide a corrected filing receipt in the following respect:

Under continuing data, insert:

This appn is a con of 09/496,380 2/2/00

Which is a div of 08/951,858 10/16/97

Which is a con of 08/436,134 5/8/95 5,748,763

Which is a CIP of 08/327,426 10/21/94 5,768,426

Enclosed is the following supporting documentation: Copy of the incorrect filing receipt with the changes noted thereon, first page of the patent application and Combined Declaration and Power of Attorney, all reflecting the correct priority claim.

Respectfully submitted,

DIGIMARC CORPORATION

Date: August 24, 2000

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ENCODING AND DECODING AUXILIARY CODES IN AUDIO SIGNALS**RECEIVED**

SEP 06 2000

Group 2700

Related Application Data

5 This patent application is a continuation of US Patent Application 09/496,380, filed February 2, 2000, which is a divisional of copending US Patent Application 08/951,858, filed October 16, 1997, which is a continuation of 08/436,134, filed May 8, 1995, now US Patent 5,748,763, which is a continuation-in-part of application 08/327,426, filed October 21, 1994, now US Patent 5,768,426. These applications are hereby incorporated by reference.

10 This patent application is related to US Patent Applications 09/441,819, filed November 17, 1999; 09/441,820, filed November 17, 1999; 09/441,821, filed November 17, 1999; 09/442,440, filed November 17, 1999; 09/442,441, filed November 17, 1999; 09/482,752, filed January 13, 2000; 09/484,742, filed January 18, 2000; and 09/520,406, filed March 8, 2000, which are hereby incorporated by reference.

Field of the Invention

15 The invention relates to audio signal processing, and more particularly relates to encoding and decoding auxiliary codes in audio signals.

Background and Summary of the Invention:

20 For many applications, there is a need for a way to encode and decode auxiliary information in an audio signal. It is challenging to design encoders and decoders that embed such auxiliary information so that it is substantially imperceptible, yet recoverable and robust to various forms of manipulation.

The invention relates to methods, systems and devices for encoding and decoding auxiliary codes in audio signals. One aspect of the invention is a method of decoding an auxiliary code embedded in an audio signal. The method performs a statistical decoding of a multibit auxiliary code, which has been repetitively  
25 embedded in the audio signal. The method decodes code values of the auxiliary code from two or more different portions of the audio signal, each having the multibit auxiliary code. It then uses the code values decoded from two or more different portions to determine statistically the code values of the auxiliary code.

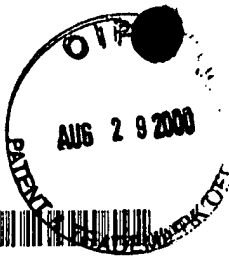
There are a number of ways to implement this method. In one implementation, bit values for code bits are decoded from portions of the audio signal, and values decoded for the same code bits from different portions  
30 are used to statistically derive a bit value for each of the code bits. The auxiliary code is recoverable from a portion of the audio signal, and the confidence with which the auxiliary code is accurately recovered increases with the number of different audio portions from which the auxiliary code is decoded.

In one form of decoding the auxiliary code, a statistical feature of the audio signal is analyzed to decode the code values of the auxiliary code. Examples of the statistical feature include the signal's entropy or power.  
35 The method determines the value of an auxiliary code bit based on the calculated statistical feature and correspondence between the calculated statistical feature and characteristics associated with possible code values,

## FILING RECEIPT



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Washington, D.C. 20231

APPLICATION NUMBER	FILING DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO	DRAWINGS	TOT CLAIMS	IND CLAIMS
09/585,726	05/31/2000	2747	798	60208	21	26	2

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Group 2700

Date Mailed: 08/15/2000

Receipt is acknowledged of this nonprovisional Patent Application. It will be considered in its order and you will be notified as to the results of the examination. Be sure to provide the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION when inquiring about this application. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please write to the Office of Initial Patent Examination's Customer Service Center. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the PTO processes the reply to the Notice, the PTO will generate another Filing Receipt incorporating the requested corrections (if appropriate).

## Applicant(s)

Geoffrey B. Rhoads, West Linn, OR ;

## Continuing Data as Claimed by Applicant

## Foreign Applications

This appn is a con of 09/496,380 2/2/00  
 which is a div of 08/951,858 10/16/97 6,026,193  
 which is a con of 08/436,134 5/8/95 5,748,763  
 which is a CIP of 08/327,426 10/21/94 5,768,426

If Required, Foreign Filing License Granted 08/15/2000

## Title

Encoding and decoding auxiliary codes in audio signals

## Preliminary Class

700

Data entry by : ROBINSON, YOLANDA

Team : OIPE

Date: 08/15/2000

